


VOLUME 2

ENVIRONMENTAL LIVING:  
PROTECTING THE ENVIRONMENT...  
IN YOUR YARD AND GARDEN



MINISTRY OF  
ENVIRONMENT AND ENERGY

 Ontario

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VOLUME 2

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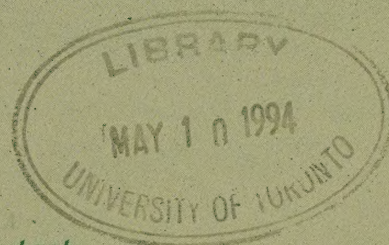
ENVIRONMENTAL LIVING:

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PROTECTING THE ENVIRONMENT...

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IN YOUR YARD AND GARDEN



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## ABOUT "ENVIRONMENTAL LIVING"

Would you like to do something to help the environment — but do you feel overwhelmed by the magnitude of the problems? Do you wonder if your efforts as an individual can make a difference?

Take heart. "Environmental Living" was written for all those people who want to protect the environment but need to know how and where to get started.

The pages of "Environmental Living" describe how to conduct your everyday activities in ways that are environmentally friendly. It's a "primer" on environmental topics that affect people who live in the city, people who live in the country and people who spend time in the great outdoors. Everything is explained in simple, easy-to-understand, easy-to-remember language.

Do you want to know how to cut down on the garbage you generate? How to start a compost heap? How to drive your car to improve its energy efficiency, lengthen its life and reduce the pollution it creates? "Environmental Living" shows you how easy it is to do all these things.

Do you live in the country — or are you thinking about buying a cottage or rural property? Do you want to learn how to look after your septic tank system? How to test for bacteria in your well water? How to build an environmentally friendly dock? "Environmental Living" looks at all these topics, and more.

Do you spend a lot of time in the great outdoors? Do you want to know how to avoid insects? What to do about zebra mussel infestations in the Great Lakes? If it's safe to eat that fish you caught? "Environmental Living" has the answers.

Living environmentally doesn't mean you have to become an environmental expert. You don't have to spend a lot of money or time. Nor do you have to make wholesale changes to your life.

No single, dramatic act by one person can save this planet. But all of us, doing a lot of simple, commonsense things, *can* save it — a little bit at a time. ▲







## WHAT YOU'LL FIND IN "ENVIRONMENTAL LIVING"

"Environmental Living" is an unusual concept in publishing. It is one book, but it is published in five separate sections. You, the reader, decide which topics you want to read about, and you need order only those sections.

This means "Environmental Living" uses less paper, and you, the reader, don't have to wade through pages and pages of information you don't need.

To order any section of "Environmental Living", contact the Ministry of Environment and Energy by telephoning the Public Information Centre in Toronto at (416) 323-4321 or toll-free at 1-800-565-4923.

Each section of "Environmental Living" consists of several chapters that share a common theme. Every section and chapter is self-explanatory but, as you read them, you may come across references to other sections or chapters that can give you related or more detailed information. Those sections and chapters will be referred to by their complete titles, to make it easy for you to order that section.

At the end of each chapter is a list of publications you may want to read to get even more detail or technical background information; there's an explanation of where and how to obtain copies of those publications.

Here's a list of chapters in each section (a description of the chapter's contents follows, in brackets). ▲

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### *Environmental Living:*

#### *Protecting the Environment ... in Your Home*

There's information of interest to everyone in this section, which has chapters about handling waste, non-toxic cleaning, how to drive to minimize pollution, and what you can do about global issues such as acid rain and global warming.

- "What a Load of Garbage!" The 3Rs  
(Describes the 3Rs and what to do with your garbage);
- The 3Rs, Take Two: Little Things Mean a Lot  
(Quick tips on practising the 3Rs);
- Cleaning Without Chemicals: Recipes for a Non-Toxic Planet  
(Making your own non-toxic cleaning products);
- Cleaning Without Chemicals, The Sequel: The Non-Toxic Cleaning Kit (Quick cleaning tips);
- Not Down the Drain: What to do With Household Hazardous Waste
- Water, Water Everywhere  
(How to conserve water);
- Your Car and the Drive for a Healthy Environment  
(How your driving habits affect the environment);
- Good News about Acid Rain
- Global Warming: The Gloves are Off  
(What you can do about global warming). ▲



WHAT YOU'LL FIND IN  
"ENVIRONMENTAL LIVING"

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*Environmental Living:*

*Protecting the Environment ... in Your  
Yard and Garden*

Do you want environmental tips you can put into practice in your backyard? Read these.

- A Down-to-Earth Guide to Composting and Vermicomposting
- A Grassroots Look at Your Lawn (Growing a lawn that looks after itself);
- Those Pesky Bugs! And Other Small Hazards of the Great Outdoors (Controlling insects);
- Using Insecticides Safely
- Too Close for Comfort: What to Do About Nuisance Animals. ▲

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*Environmental Living:*

*Protecting the Environment ... when Building  
or Buying Your Dream Cottage*

If you are buying a cottage or rural property, read these.

- Before You Take the Plunge: Rural Life is Different (Adjusting to country living);
- Bylaws and Buildings: Unravelling the Red Tape (Building and zoning laws and permits);
- Dig a Well to Tap into Groundwater Supplies (How to construct a well);
- This is a Story about Sewage. Skip It and You'll Be Sorry (Disposing of sewage when there's no municipal sewer system);
- Landscaping You Can Live With (Landscaping to protect and blend into the environment and to attract wildlife). ▲

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*Environmental Living:*

*Protecting the Environment ... at the Cottage*

Water quality (both groundwater and lake water) is emphasized in this section.

- Testing the Waters: Bacteria and Your Drinking Water (Getting safe drinking water from your well);
- Every Cottager's Covert Operation: Maintaining that Septic Tank System (How to run your septic tank system trouble-free for years);
- Keeping Aquatic Plants Under Control for Boating and Swimming
- Stop Old Age from Ruining Your Lake (Avoiding eutrophication of your lake);
- All the Dirt on Shoreline Alterations ("Do's and don'ts" of changing the natural shoreline);
- Gimme Shelter: Building Docks and Boathouses (Environmentally friendly structures). ▲

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*Environmental Living:*

*Protecting the Environment ... in the  
Great Outdoors*

This section will interest outdoors enthusiasts.

- Campfires and Cookouts (Fire safety);
- Could Swimming in Your Lake Make You Sick? (Diseases and parasites that affect swimmers);
- Great Lakes! The Zebra Mussel Story (The spread of zebra mussels in Ontario's waterways);
- Boating and the Environment
- Goin' Fishing: Should You Eat the Catch of the Day? (Contaminants and the consumption of sport fish). ▲





## A DOWN-TO-EARTH GUIDE TO COMPOSTING AND VERMICOMPOSTING

Canadians generate more garbage than anyone else in the world. Every Canadian can lay claim to generating about two kilograms of waste each day. Half of that is generated indirectly *for* us by industrial, commercial and institutional sources, while the other half is self-generated, household garbage.

But a lot of Canadians are bucking the waste race by *composting* their waste instead of trashing it.

You've heard of the "3Rs" — reduce, reuse, recycle. Composting is one of the most popular forms of recycling — and it's the do-it-yourself kind.

Anyone can compost household waste — homeowners, cottage owners, apartment dwellers. It's easy. It's cheap. It doesn't take much time. It gives you a tangible reward — rich, organic humus that goes right back into your yard or garden. And it feels great to do something yourself that's so simple, yet effective, in helping the environment.

There are two ways to compost household waste. The best-known way is to start a compost pile in a corner of the yard, using kitchen and yard waste. Another way — popular with apartment dwellers and people who don't want to go out-of-doors in winter to compost — is vermicomposting. Vermicomposting uses live worms to speed up the composting process.

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### *How a Compost Pile Works*

A compost pile is really a community of micro-organisms. Bacteria break down plant tissue. Fungi and tiny protozoa join in the cycle, as do centipedes, millipedes, beetles and earthworms. (Later in this chapter we'll look at vermicomposting using "red wigglers".)

Materials containing carbon and nitrogen, in the right mix, must be put into the pile. The micro-organisms use carbon (found in leaves and wood wastes) for energy. Nitrogen (from grass clippings and kitchen scraps) give microbes the proteins they need to live and grow. The more nitrogen-loaded materials you put in your compost heap, the faster the heap will decompose. (On the other hand, too *much* nitrogen, and your compost will smell of rotten eggs. To fix this, just add high-carbon materials.)

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### *How to Get Started with Composting*

Composting is easy. You don't have to be a gardening whiz to layer your waste, add water occasionally, and mix the pile once in a while — and that's all there is to composting.

First, decide where to put your compost heap. The site must be away from waterways and wells, and at least 30 centimetres (one foot) above the water table. The site should have good drainage, so avoid areas where water tends to stand after a rainfall or during spring thaw. If drainage is good, a shady spot will keep the compost pile from drying out. If drainage is poor, choose a sunny site.

Your compost pile should be at least 0.9 metres (that's about three feet) square.

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### *Choosing a Container for Your Compost*

You should consider enclosing the compost heap. That doesn't mean you absolutely must use a container, but installing one will help you keep the pile neat, efficient and manageable. It should be covered to help control the dampness; damp as a squeezed-out sponge is the ideal.



## A DOWN-TO-EARTH GUIDE TO COMPOSTING AND VERMICOMPOSTING

You can make a one-square-metre (about three-foot-square) box from wood and wire mesh. Or use chicken wire, or some snow fencing, or old wooden pallets. A garbage can (with the bottom removed and holes drilled in the sides) is good for small composting purposes.

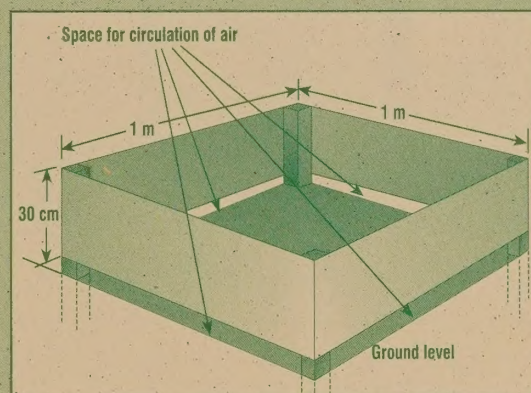
Here's how to tailor-make an enclosure of one square metre (about three square feet), rising 30 centimetres (one foot) above ground.

- Mark off a one-square-metre (three-foot-square) area on the ground. Dig a pit 30-50 centimetres (12-20 inches) deep. (The pit will keep the pile warm in winter, when low temperatures slow down decomposition; it will keep the compost damp in summer.)
- Drive four stakes, 60 centimetres (two feet) long, into the ground at the four corners. Leave half the length of each stake above ground.
- Using a sheet of 6 millimetre (quarter-inch) aspenite plywood, cut four 30-centimetre-by-one-metre (one-foot-by-three-foot) rectangles. Nail them to the stakes to form a one-metre-square (three-foot-square) enclosure. The bottom edge should stop about 2.5 centimetres (one inch) short of the ground — this is so air can circulate up through the heap.
- Use the remaining half of the sheet as a winter cover. (In summer, use a sheet of heavy-gauge plastic, stapled to a one-square-metre/three-foot-square frame.) The cover keeps breeding insects at bay, and helps retain moisture.
- Start composting!

If you're going to compost **yard wastes only**, and won't add woody items, you will have compost in as little as three months, with very little effort.



*Containers for Composting*



*Custom Enclosure*



## A DOWN-TO-EARTH GUIDE TO COMPOSTING AND VERMICOMPOSTING

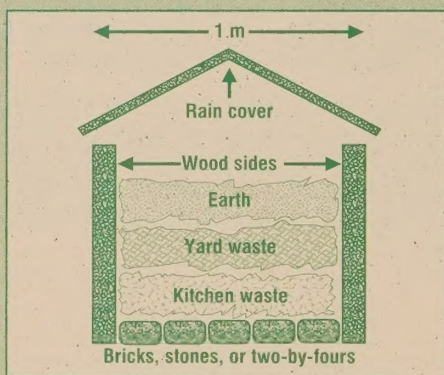
If you want to *add food waste* as well, you need to do a little more work to encourage decomposition. That means ensuring the right mixture of materials, turning the pile frequently and maintaining the right amount of moisture.

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### *Layering the Compost Pile*

Start with a layer of leaves or yard waste. Then, add a layer of kitchen waste and grass clippings. Next, add a layer of soil or some commercial compost or manure; this starts decomposition. Then, just continue to layer: kitchen waste, yard waste, soil, in that order.

What can you put in your compost heap? You can compost almost one-third of your household garbage, and virtually all of your yard waste!



*From the kitchen:* Put in fruit and vegetable peel, egg shells, coffee grounds, tea bags, nut shells and cold ashes left over from wood fires (the ashes may look dead, but be sure they are dead by pouring water over them before you add them to your compost pile. You may have a fire, or a melted composter on your hands if you're not careful).

Don't include meat, bones, or fatty foods (cheese, salad dressings, leftover oils) because nuisance animals will be attracted to them. Also, don't compost leftover dairy foods, pet wastes, charcoal, or coal ashes.

*From the yard:* Compost fallen leaves, dry lawn and garden clippings (spread then in the sun to dry out before adding them to the pile), weeds (but before, not after, they seed) and trimmings from healthy garden plants.

Keep the pile slightly moist — like a squeezed-out sponge. If it's dry, spray it occasionally with water. Cover the pile, to retain moisture.

Turn the pile over every five to 10 days, to allow air to circulate. (Don't turn the pile any more frequently than that — you need to allow time for the material to heat up and decompose.)

In as little as 10 to 12 weeks, you'll have a rich humus that you can add to the soil in your yard or garden, or give away to others.

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### *Composting Tips*

- To keep nuisance animals away, use a compost container cover that's hinged and latched.
- Dig in food waste each time you add it, or cover it with soil, to discourage insects and animals.
- Compost leaves separately, if you wish, simply by piling them in an unobtrusive corner out of the wind. Dig them into the garden to lighten the soil for spring planting. Or, in the fall, shred the leaves with a lawn mower, bag them and let them moisten. In spring, you'll have leaf mould to put in your garden or to add to the compost pile.
- Compost wood ashes by adding very thin layers to the pile. Don't compost charcoal or coal ashes.



## A DOWN-TO-EARTH GUIDE TO COMPOSTING AND VERMICOMPOSTING

- Add only green weeds, in which the seeds have not matured, to the compost heap.

### *Now You've Got Compost, What Do You Do With It?*

Congratulations! You've got compost when the compost heap produces a humus that is dark and crumbly. Bits and pieces of nut shells, egg shells and woody materials may still be identifiable. Use a wire mesh screen to shake out coarse pieces.

You can use the finished compost in several ways.

Spread it in your flower and vegetable gardens — up to 7.5 centimetres (three inches) deep — and dig in before planting.

To make a fine potting soil, mix compost with equal amounts of soil and sand.

By mixing equal parts of compost and water in a watering can, you can water and enrich your garden, lawns and potted plants.

Screened compost can be used to start seeds and to top-dress lawns.

### *Vermicomposting*

Vermicomposting accomplishes the same ends as regular composting, but does so using worms. If you live in a highrise, or wish to compost only kitchen waste, or don't want to hike through your garden to the compost heap in winter, vermicomposting is for you.

"Red wigglers" are the worms of choice for vermicomposters. Red wigglers eat and expel their own weight each day. To accommodate them, all you need is a bin, some bedding and some compostable material.

To handle the waste generated by one or two people, you need a bin measuring 45 x 60 x 30 centimetres (18 x 24 x 12 inches), and about 120 - 225 grams (one-quarter to one-half a pound) of worms.

To handle the waste generated by two or three people, you need a bin 60 x 60 x 30 centimetres (24 x 24 x 12 inches), and about 225 grams (a half-a-pound) of worms.

Keep in mind that one pound of worms contains 1,200 to 1,500 individual red wigglers — that's a lot of composting power!

### *When Your Compost Heap is a Problem*

<i>Symptom</i>	<i>Caused by</i>	<i>Solution</i>
Odor	Lack of air; too wet	Turn pile
Pile is warm and damp in middle only	Pile is too small	Add material and mix in
Pile is dry in centre	Lack of water	Moisten and turn pile
Pile is damp, smells sweet but won't heat up	Lack of nitrogen	Add grass clippings, manure, bloodmeal, nitrogen fertilizer



## A DOWN-TO-EARTH GUIDE TO COMPOSTING AND VERMICOMPOSTING

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### *Preparing for Vermicomposting*

To set up the bin, drill holes in the bottom for drainage, cover the inside bottom with an old window screen (so water can drain through), set the whole thing on blocks, and put a tray under it.

Next, you have to provide a living environment for the worms. As with outdoor compost heaps, this "bedding" must be kept about as moist as a squeezed-out sponge. Use any of these: Straw, lawn clippings, leaves that have dried out, torn-up plants, damp peat moss, ground-up cardboard and shredded paper.

Now, get the worms. Suppliers can be found in your local Yellow Pages under "Fishing Bait"; vermicomposters are listed there as well. Ask the supplier to confirm the worms are suitable for vermicomposting. (Red wigglers are not suitable for use as fishing bait; they're too small.)

Remember the worms are living creatures, so you must bring the vermicomposter indoors when the temperature drops below 4° Celsius (or, below about 40° Fahrenheit).

Feed worms almost any kitchen waste: vegetables and fruit, coffee grounds, tea leaves and egg shells that have been ground very fine. But don't feed them meat, fatty foods or starches; these wastes attract fruit flies. Whatever you put in the vermicomposter, cover it with a layer of bedding material.

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### *The Fruits of Labour*

Your compost should be ready in about three months. It should be removed and new bedding put down for the worms to move into.

To do that, move the finished compost, complete with worms, to one side of the bin. Put new bedding in the empty spot, then add fresh composting scraps to that; the worms will abandon the completed compost.

Wait a week, then remove the lid under a bright light so the worms will burrow into the new bedding. Scoop out a few layers of your fresh compost and store it in an open plastic bag until you're ready to use it in your garden. Or mix it with potting soil for potted plants.

Worms have a way of multiplying on you; what do you do with the increasing population? You can divide the "old" bed up to start a new bin. Or you can spread the word about the wonders of vermicomposting and give the worms away. You can also put the worms out in your garden or on your lawn — they're great for aerating the soil.

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### *More for You to Read*

To order the Ministry of Environment and Energy publications included in the list below, telephone the Public Information Centre in Toronto at (416) 323-4321 or toll-free at 1-800-565-4923. Please use the Public Information Bank System (PIBS) number to order publications.

*Choose Nature's Way. Compost!* Pamphlet.

Ministry of Environment and Energy. PIBS 665b.

*Vermicomposting.* Brochure. Ministry of

Environment and Energy. ISBN: 0-7729-8658-4.

PIBS 1428b. ▲





## A GRASSROOTS LOOK AT YOUR LAWN

Do you want a healthy lawn ... beautiful flowerbeds ... your own picked-this-morning supply of fresh vegetables? Do you want to cultivate healthy plants without constantly resorting to using chemicals? You *can*. This chapter of *Environmental Living: Protecting the Environment ... in Your Yard and Garden* looks at gardening (mostly emphasizing your lawn).

What do you need to do to start a new lawn? Once your lawn is established, how do you look after it?

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### *Getting Established: Start at Ground Zero*

So ... you're building a new house and you're planning the landscaping. Or, you've acquired an established property and the existing lawn is in terrible shape. (You don't need to be an expert gardener to assess the latter situation — you can see for yourself that the lawn has been badly maintained, is overrun with weeds or disease, that the soil is heavily compacted or drains poorly — all good reasons to go back to square one.)

You need to literally break new ground, then work your way up. You can't grow healthy plants in unhealthy soil. Begin by analyzing what's in your soil and what it needs to produce healthy plants.

Contact the Ontario Ministry of Agriculture and Food, Consumer Information Centre, 801 Bay Street, 1st floor, Toronto, Ontario M7A 2B2, or telephone 416-326-3400 (fax 416-326-3409) and ask about soil testing. This ministry provides farmers and gardeners with soil-testing kits and a list of soil testing laboratories.

Send a soil sample to a testing laboratory in the early spring, before you do any yard work. The lab will tell you which nutrients you need, the pH of your soil, and what to do to improve both, for the kinds of plants you want to grow.

Why worry about pH? It's important because many popular grasses, plants and shrubs in Ontario require a soil pH of 6.5.

pH — the alkalinity or acidity of soil — is measured in pH units on a scale of 0 to 14. The lower the number, the more acidic the soil.

pH is a logarithmic measure, so a one-pH unit change represents a tenfold change in acidity. So a pH of four is 10 times more acidic than a pH of five; a pH of three is 100 times more acidic than a pH of five.

To increase your soil's pH, add lime. To lower it, add sulphur to your soil.

Then, get the soil in top condition. You'll never have a thick, lush lawn if the soil is badly compacted (the solution: cultivate); if it is missing key nutrients (one solution: fertilize and mulch); if it drains poorly (the solution: install weeping tile or do appropriate landscaping); if it doesn't allow enough oxygen to reach the roots of the grass (the solution: aerating and coring).

Find out what help your soil needs.

Next, decide how to landscape the site correctly. Get professional advice on this. Plant high-quality sod or seed that is suited to the site. In choosing the type of grass to plant, be realistic about the soil, sunlight, food and water your lawn will get, and how much time you can really spend looking after the lawn.

Fescues and perennial ryegrasses are good choices in most parts of Ontario. Factors to take into account are the type of soil, the amount of shade, the local climate (including rainfall, temperature and variations in seasons), the amount of traffic the lawn will be exposed to, and common diseases and pests in your area.



## A GRASSROOTS LOOK AT YOUR LAWN

All this planning pays off, because when you plant the right type of grass on a properly prepared site, it almost looks after itself.

Most people get caught on the lawn care treadmill of constantly fertilizing, watering, mowing and applying pesticide, pesticide and still more pesticide. They pour millions of litres of water and thousands of litres of pesticides and fertilizers on them. Then they mow the lawns literally within an inch of their lives. They pounce on weeds and worry about bugs. And finally they conclude that looking after a lawn is a tremendous amount of work. And it is — because they *make work* for themselves.

The fact is, most people mow their lawns too often, water them too much, and load far too much fertilizer on them.

You don't *have* to run on this lawn care treadmill. If you've planned the site properly, your lawn will fend off insects, disease and weeds without your constant intervention. The trick is to set things up properly, as outlined earlier. Then, once your lawn is established, let it do its *own* work.

---

### *Looking After Your Lawn*

What do you have to do to look after your lawn — new or already established — properly? Here's a simple breakdown for first-time gardeners.

First there are the regular jobs: Mowing and watering regularly and correctly. Next, you have to keep the plants and soil in top condition by making sure nutrients and air are getting to the roots of the grass. That means you have to dethatch, aerate and fertilize the lawn from time to time. Finally, you have to keep an eye on outside forces that could damage

your grass, by monitoring the lawn for weeds, diseases and pests. Some problems may be solved, or prevented, by the judicious use of pesticides, and it may be wise to call in professional help to apply them. (Common pests and diseases are described later.)

Bear in mind that if your lawn is healthy, then weeds, diseases and pests will have to battle to gain hold. It pays to look after your lawn!

Tips on lawn care follow.

### *Tips on Mowing Your Lawn*

Most people cut their grass too frequently and cut it too short. Grass is living stuff. Don't submit it to unnecessary stress. To mow it properly, cut it only as often as is required to maintain a height of 6 - 7.5 centimetres (2.5 - 3 inches) — that's to avoid giving the plant a shock.

Don't forget to sharpen the mower blades. A ragged cut means the plant will heal slowly and be weakened; this is an open door to disease.

In summer, don't mow too often — let the grass grow taller. Taller grass shades and cools the soil and prevents sunlight from reaching and germinating weed seeds.

Leave the clippings on the lawn, or compost them.

### *Watering Your Lawn*

Don't start watering at the first sign of spring. If you make water easily available early in the season, the roots of the grass will stay in the topmost layers of the soil. Then, in the heat of summer, the roots won't be deep enough to reach moisture in the subsoils — then you'll *have* to water the grass often, just to keep it alive.



## A GRASSROOTS LOOK AT YOUR LAWN

Consider the type of soil you have. You may be wasting water by applying too much, or too quickly, for the type of soil you have. (Clay soils will hold a lot of water, but they absorb water slowly. Sandy soils won't hold a lot of water, but they *will* absorb it quickly.)

Water your lawn regularly but not often — every three to five days. When you do water, do a thorough soaking. An hour-long soaking will penetrate better and encourage the grass to send down deep roots.

Water in the mornings — avoid mid-day watering (when water evaporates) and evening watering (which encourages fungi and other disease).

Whatever you do, *don't* water frequently and lightly — that's just the ticket to encourage weeds to grow.

### *Dethatching, Aerating and Fertilizing*

Thatch is a layer of organic matter which develops between the soil and vegetation; it's made of living and dead stems, roots and leaves. A thin layer of thatch helps your lawn resist weeds, drought and disease, but if your site doesn't drain well, you could end up with a thick accumulation of thatch. Too much thatch means that less water will reach your soil, your grass will root shallowly in the thatch, and fertilizer and pesticides will accumulate in the thatch instead of reaching their intended destinations.

The best way to avoid thatch — or to get rid of it — is to aerate the soil. Let earthworms do the work for you. To encourage them, avoid using acid fertilizers and chemicals. In spring, topdress the lawn with topsoil or peat moss — anything rich in organic matter. Just cover the lawn with a thin layer of this soil.

You can de-thatch mechanically simply by using a good stiff wire rake, or better yet, use a rake which has wide curved tines, like an oversized fork. Rent a verticutter or vertimower for heavy thatch.

Aerating the soil is just what it sounds like — twice a year, you should give your lawn some air! Aeration allows oxygen and nutrients to penetrate the soil; water will drain better. Aerate when the soil is relatively dry. Use a commercial or homemade aerator (an implement with spikes or cleats). The very best aerators are those that remove cores or plugs of soil (the coring machines are good for removing thatch and compacted soil, too). You can fill in the holes with uncompacted soil.

### *Fertilizing*

Eager novice gardeners don't realize they could kill their lawn with kindness. It's important to fertilize correctly by using the right fertilizers in the required proportions at the correct frequency. Don't fertilize unnecessarily! If you overdose your lawn, the grass will grow alright, but so will weeds. Also, the grass will grow so fast you'll be mowing it constantly — an unnecessary chore for you, and one that also weakens the grass plants and lowers their resistance to insects and disease.

Most commercial fertilizers are a nitrogen-phosphorus-potassium combination, which is described on the package as a numerical mix. For example, a fertilizer described as "6-12-12" is six per cent nitrogen, 12 per cent phosphorus and 12 per cent potassium.

You can get these nutrients from organic, as well as synthetic, sources. Here are the common nutrients and some natural sources:

**Nitrogen** — Canola seed meal, fish meal, blood meal, hoof and horn meal.



## A GRASSROOTS LOOK AT YOUR LAWN

**Phosphorus** — Bone meal, single super phosphate from Israel or North Africa.

**Potassium** — Kelp meal, liquid seaweed, wood ashes.

Garden centres sell these products and can give you advice on how much to use, and where. They also sell organic mixes of other minor soil nutrients, including iron, sulphur, calcium and magnesium.

You can also use such tried-and-true “natural” fertilizers as rotted manure and compost.

Manure, which can be bought at supermarkets, hardware stores and nurseries, is sterilized to kill any weed seeds that might be present; sterilization also removes odors.

You can make your own fertilizer by composting your kitchen scraps and yard waste. Composting has become very popular in Ontario in recent years, and many municipalities offer residents inexpensive composting containers to do it themselves, or free compost that can be picked up from a municipal depot.

Compost can be dug into the ground, used as mulch, or used as topdressing on your lawn. To learn how to compost, read “A Down-to-Earth Guide to Composting and Vermicomposting”.

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### *Dealing with Common Lawn Weeds*

If it's not grass, is it a weed? One reason people garden is because it brings them in touch with nature; a weed here and there should be expected. Some plants that were once considered flowers, or otherwise desirable plants, are now categorized as “weeds” by the manicured-lawn set — clover, dandelions, wildflowers and groundcovers are among them.

The best weed protection for your lawn is its own good health. If it's fertilized correctly, your lawn will start growing in spring before weeds germinate. If you mow the right way, the grass will grow heavily and shade out new weeds. If you water properly, summer weeds don't stand a chance against your vigorous lawn.

Weeds usually spring up where grass can't grow, or grows weakly, due to poor soil, drought, poor fertilization, heavy mowing and heavy traffic. Fix those basic problems, and you've got a healthy lawn — and a poor environment for weeds.

If your lawn is already established, you may feel a need to do something — anything — to “zap” those weeds. Here are some common weeds and how to handle them (using mostly muscle power).

**Chickweed** — Hand-pull or cut as much as you can. Rake up the stems to avoid re-establishing the plant. Don't water often, but when you do, water heavily. Increase soil pH by adding lime.

**Dandelions and Plantain** — Dig plants out completely when they are in bloom (at their weakest), using a weed popper. Mow and remove clippings when seedheads are present. Increase soil pH.

**Thistle** — Dig them out with a weed popper or spud, removing as much as you can (thistle roots are “runners” that can extend more than 25 feet!). Fill in the hole with topsoil. Sprinkle the area with lawnseed.

**Crabgrass and Annual Bluegrass** — High mowing will eventually reduce your “crabgrass quotient” to zero, but it takes several years. Meanwhile, fertilize in the spring to get your lawn off to a good start. Shade crabgrass and bluegrass by covering the lawn with black mulching paper or black plastic for up to 10 days — your lawn will wither too, but it will recover.



## A GRASSROOTS LOOK AT YOUR LAWN

**Clover** — Pull or cut it in the spring. Make sure soil phosphorus is kept low. Thick, well-fertilized grass will keep it from re-emerging.

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### *What to Do About Bugs in Your Lawn*

It would be a strange lawn that didn't have the odd insect in it. Don't worry if you spot the occasional pest; there are plenty of natural predators around to make a meal of it.

To encourage those predators to come around, plant vegetation that attracts them. Trees, flowering shrubs and berry bushes will provide homes for grub-eating birds. Plant borders of Queen Anne's lace, daisies, black-eyed Susans, buttercups, sunflowers and herbs such as coriander, dill and fennel. (For more information on insect-eating birds and companion planting, see the sections that follow on pest control for vegetables.)

It's not always easy to identify the problem pest, or to decide the best course of treatment (which could include applying pesticides). You may want to consider calling on professional help. If your lawn is small, you may be able to deal with the problems yourself.

If the infestation is a major one, you may want to apply a pesticide. You must use a pesticide that is registered by Agriculture Canada and that is provincially scheduled by the Ministry of Environment and Energy. The product label must name the particular pest which concerns you. To learn more about pesticides and how to apply them, read "Using Insecticides Safely".

Listed below are some of the most common insect problems you may encounter in your lawn, and some ways to deal with them.

**Ants** — Pour bone meal or diatomaceous (containing silica) earth over the mound openings.

**White grubs** — These are the larvae of scarab beetles. There are three common varieties in Ontario: European chafer, Japanese beetle and June beetle. They feed on the roots of grass — you can actually roll back the grass like an area rug. In turn, skunks feed on them. For severe infestations, you may want to consider using a pesticide.

**Sod webworms/Lawn moths** — You'll see adult moths dart out of the grass when it's disturbed. The worms (caterpillars) live in silk-lined burrows during the day. The caterpillars cut off grass stems and leaves, pulling these into the tunnels to feed at night. Dethatch the lawn. Consider using a pesticide for severe infestations.

**Hairy chinch bugs** — They feed on grass stems, leaving behind sunken patches of dead grass (the roots are still in place). To diagnose the problem, sink a cylinder (for example, a coffee can with both top and bottom removed) in the lawn, bordering a yellow-green area, and fill the cylinder with water; the chinch bugs will float to the top in about five minutes. Consider applying a pesticide. Note, though, if your lawn is shaded, you probably won't be bothered by chinch bugs.

**Cutworms** — The larvae build a vertical burrow in the ground and feed around its rim, so you'll notice a dead patch of lawn with a small hole in it. Both adults and larvae are active at night (though it's specifically the larvae that feed on grass roots). If you find five or more cutworms in several samples of lawn, each one square metre (10 square feet), you have a heavy infestation. Consider using pesticide.



## A GRASSROOTS LOOK AT YOUR LAWN

**Billbugs** — You may have billbugs when turf wilts despite watering, and turns yellow and dies. You may find excrement particles or “frass” in the thatch layer of your lawn.

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### *Other Critters*

To learn how to control raccoons, skunks and other critters, read “Too Close for Comfort: What to Do About Nuisance Animals”.

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### *Lawns and Disease*

Most lawn diseases are the result of unhealthy grass arising from poor soil, poor drainage, or too much thatch. If you’re looking after your lawn properly — watering and mowing correctly, dethatching and aerating as needed — and if you’ve planted disease-resistant grass, you’re unlikely to have problems with fungal diseases. Many diseases can, however, be treated with fungicides and won’t re-occur if you follow up with a proper lawn care program.

Here are a few common diseases:

**Snow mold** — You’ll see it as soon as the snow melts, as circular colored (pink, grey, brown) patches matted with mold. To avoid the problem in areas with a history of mold, fertilize, cut the grass to the right height and keep thatch to a minimum.

**Fairy ring** — Soils without enough moisture and of poor fertility often suffer from fairy ring. Initially, you’ll see a circle of dark green, fast-growing grass and later, you’ll see alternating inner bands of dead and green grass. In late summer, if it’s wet, you’ll also see mushrooms. There’s no easy cure — one way is to cultivate the whole area in order to mix uninfested soil with the infested parts.

**Powdery mildew** — The popular Kentucky bluegrass is affected by this fungus, especially in shady protected areas. It appears as small patches of white and light grey fungal growth on the grass blades, which look as if they have dust on them, turning from yellow to brown as they weaken — though they don’t die, they’re susceptible to other diseases and to pests. The solution is to reduce shade, or use shade-tolerant grass, improve air drainage and be sure the grass has plenty of nutrients and water.

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### *Growing Vegetables Organically*

A beautiful lawn may be a feast for the eyes — but a vegetable garden is simply a feast! The same rules about soil condition, fertilizing and weed control apply, generally. Here are a few tips on planting and tending your crop:

- Pick a sunny site. Plant rows in a north-south pattern (tall crops north and ground-hugging crops south).
- Plant in soil mounds raised 10 - 20 centimetres (four - eight inches) above ground, and not so wide they’re awkward to cultivate. Raised beds help you avoid tramping down the soil; they improve aeration and drainage; they discourage weeds.
- Dig compost into the soil in spring and fall. Fertilize plants in mid-season too. In spring, dig in rotted manure below 15 centimetres (six inches). Aerate the beds twice a month during the growing season.
- Water deeply so the soil is soaked 2.5 centimetres (one inch) *below* the roots. Don’t water the foliage — it’s the roots that take in moisture, so aim for the ground.



## A GRASSROOTS LOOK AT YOUR LAWN

- At the end of the season, clean up garden debris, so pests have no place to lay their eggs. Compost the debris. Turn over the soil in the garden and add compost.

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### *Controlling Bugs and Disease in Your Vegetable Garden*

- Discourage insects and disease by rotating crops — plant unrelated vegetables next to each other, and don't put the same vegetable in the same bed next season.
- You might have some success with "companion planting" — certain flowers and plants repel certain bugs that would otherwise be attracted to your crops. Try aromatic plants such as chives, dill, thyme, basil, mint, garlic, celery and onions. The Pest Diagnostic and Advisory Clinic in Guelph (which is described at the end of this chapter) has reported limited success in interplanting beans and potatoes, to repel Colorado potato beetles and potato leafhoppers.
- Dispose of slugs and snails by putting a saucer of beer or brewer's yeast in the garden. Slugs and snails will crawl in, bloat and die. Slug baits containing methaldehyde are highly toxic; pets and other animals may be attracted to them.
- Encourage insect-eating birds to visit your garden. Plant flowers such as marigold, cosmos, amaranths, portulaca and sunflower. Let them go to seed. The seeds will attract cardinals, finches, buntings, juncos and sparrows.

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### *Getting Help*

Looking after a lawn and garden requires time, patience and expertise. You may want to get advice and help from professionals to diagnose problems and suggest treatment — just as a doctor would investigate your own health care needs. You may even decide to have all the regular lawn care jobs done by a lawn care company. Shop around for this service the way you would any other contractor.

Also, if you expect your contractor to apply pesticides, ask to see the exterminator's licence. The licences are issued by the Ministry of Environment and Energy to individuals who have passed examinations on, among other things, the use, storage and disposal of pesticides.

Gardening is a great hobby and there are a lot of books and fellow enthusiasts out there to help you. As a first step to seeking professional help, ask people you know for referrals and check the Yellow Pages of your telephone directory. Talk to landscape architects, contractors and designers, and visit local garden centres.

Here are some suggestions for other resources you might turn to:

*Landscape Ontario Horticultural Trades Association* is a non-profit professional association of 1,200 companies in the gardening business. Garden centres, landscapers and lawn care businesses are among its members. Contact Landscape Ontario in Mississauga at (416) 629-1184 (collect calls are accepted) or write to 1293 Matheson Boulevard East, Mississauga, Ontario L4W 1R1.



## A GRASSROOTS LOOK AT YOUR LAWN

The Ontario *Ministry of Agriculture and Food* has many fact sheets, booklets and brochures on gardening. Contact the ministry's Consumer Information Centre at 801 Bay Street, 1st floor, Toronto, Ontario M7A 2B2 or call (416) 326-3400 (collect calls are accepted).

The *Pest Diagnostic and Advisory Clinic* is located at the University of Guelph and funded by the Ministry of Agriculture and Food; for \$10 it will identify a specimen insect or weed for you. Contact the clinic at the university at (519) 767-6256.

For one-on-one advice from an expert gardener, you may want to contact a Master Gardener in your area. *The Master Gardener Program* is co-sponsored by the Ministry of Agriculture and Food and local horticultural associations; there are more than two dozen Master Gardener groups in Ontario. Master gardeners are gardening enthusiasts who volunteer their time to provide an alternative source of home gardening advice; they've been trained to OMAF standards. To find out if there's a Master Gardener group in your area, contact a local horticultural association or contact OMAF at its Consumer Information Centre in Toronto at (416) 326-3400.

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### More for You to Read

To order the Ministry of Agriculture and Food publications in the list below, telephone the Consumer Information Centre in Toronto at (416) 326-3400. Please use the "Agdex" number or publication number to order publications.

*Grubs in Lawns.* Fact sheet. Ministry of Agriculture and Food. Agdex 273/626.

*Hairy Chinch Bugs in Lawns.* Fact sheet. Ministry of Agriculture and Food. Agdex 626.

*Insect and Disease Control in the Home Garden.* Booklet. Ministry of Agriculture and Food. Publication 64.

*Lawn Maintenance.* Fact sheet. Ministry of Agriculture and Food. Agdex 273.

*Lawn Renovation.* Fact sheet. Ministry of Agriculture and Food. Agdex 273.

*Recommendations for Turfgrass Management.* Booklet. Ministry of Agriculture and Food. Publication 384.

*Thatch - Causes and Control.* Fact sheet. Ministry of Agriculture and Food. Agdex 273/23.

*Turfgrass Diseases and Insect Pests.* Booklet. Ministry of Agriculture and Food. Publication 162.

*Weed Control in Lawns and Gardens.* Booklet. Ministry of Agriculture and Food. Publication 529. ▲





## THOSE PESKY BUGS! AND OTHER SMALL HAZARDS OF THE GREAT OUTDOORS

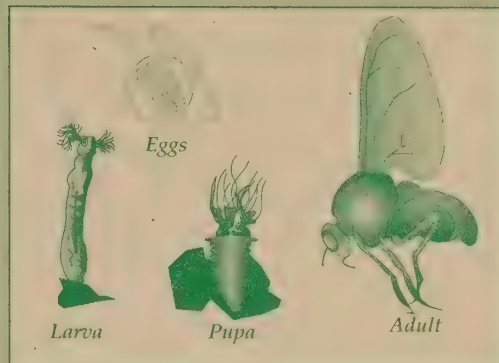
Whether it's your backyard, your cottage, or a camping trip, it's hard to enjoy the great outdoors when insects are bugging you. But what can you do about it?

Not that long ago, people would automatically reach for a spray can. Today, though, we're much more conscious of the long-term effects of synthetic chemicals on the air, water and soil.

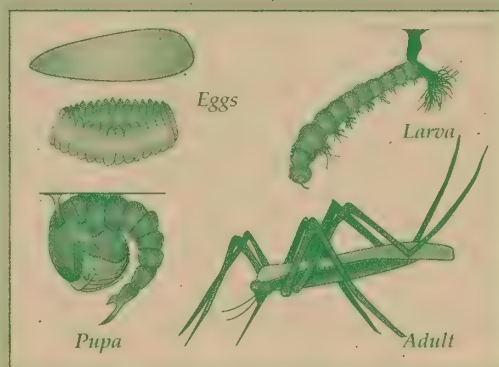
Here are some of the most common pests, and common sense ways to make your environment a lot less inviting to them.

### *Bug Off, Mosquitoes!*

- Mosquitoes breed in standing water. If you keep bird baths or wading pools in your yard, change the water every week.
- Remove water as it collects on swimming pool (and other plastic) coverings.
- Make sure your swimming pool is properly filtered and chlorinated.
- Don't let water collect in empty cans, pails, upended buckets, old 45-gallon drums and barrels. Put away or dispose of all such containers.
- Clean out clogged eavestroughs. Drain flat roofs.
- Make sure drainage ditches are free-running, not clogged with trash; driveway gutters should drain properly too.
- If you collect water from your eavestroughs in a rain barrel, keep the barrel covered.
- Overgrown vegetation harbors adult mosquitoes from sun and wind. Keep your grass, hedges and shrubbery trimmed; remove weeds.



*Blackfly*



*Mosquito*

### *How to Protect Yourself from Biting Bugs*

- When you're in a bug-infested area, wear loose protective clothing, including a long-sleeved shirt, light jacket, slacks and socks.
- To discourage blackflies, use repellant jackets that have citronella impregnated in the fibres. Citronella "coils" also work, but follow directions, and don't use them in an enclosed space, such as a tent. You can also use insect repellant roll-ons and moist "wipes".



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- Deet (diethyl toluamide) is the most effective mosquito repellant around, but must be re-applied frequently and may damage plastics, synthetic fabrics and vinyl. It may also irritate some people's skin.
- You perspire less in light-coloured clothing, so you're less attractive to insects. Dark clothes absorb heat and make you perspire — then it's open season.
- Similarly, shiny material reflects heat so you perspire less and are less attractive to bugs. Dull material absorbs heat.
- Keep pant legs and shirt cuffs closed to keep crawling insects at bay.
- Be forewarned! Mosquitoes are most active around sunrise and sunset. During the day they retreat to wooded areas. Blackflies, on the other hand, are day fliers.
- Bug-proof your home, cottage and camper by keeping window and door screens in good repair; be sure they're tight to the frames.
- When you're not using your fireplace, close the damper.
- Take a clue from people who live in malarial areas: Use netting over your camp bed and baby carriage.

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### *Feeling Waspish About Those Yellow Jackets?*

Few of us feel at ease in the presence of aggressive wasps. If a member of your household is allergic to these insects (or, for that matter, to bees or hornets), take precautions. Learn how to give first aid. Know where to get medical help in an emergency. Most importantly, don't let these insects make their home in or near yours.

Yellow jacket wasps are common in Ontario; they are distinguished by their yellow-and-black markings. They can be quite aggressive in buzzing your garbage or your picnic table; they're especially attracted to fermenting liquids, such as beer. You'll find their nests in the attic, under the deck, in mouse burrows or groundhog holes and in wood piles.

To keep wasps from taking up residence in *your* residence, start by removing any debris around buildings. Next, be sure your garbage is well-covered, because mature wasps feed on carbohydrates and garbage is a great food source.

You can blast existing nests with a residual insecticide, but you've got to have good reflexes — choose a time when the wasps are not active, and be prepared to act quickly, or risk getting stung. (Keep in mind that wasps can sting more than once!)

Consider, too, that a nest may contain several thousand wasps and you must do a thorough job — not just drive them to another site.

If you don't think you can handle insecticides safely and do the job quickly and thoroughly, follow the Golden Rule: "When in doubt, call the professionals out" and hire an exterminator.

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### *Leaf Through This If Bugs Are Bothering Your Trees*

#### *Caterpillar Infestations*

It happens every few years, part of a natural cycle: Infestations of eastern tent and forest tent caterpillars. The first infestation recorded by Europeans was by the artist Paul Kane in 1834:



## THOSE PESKY BUGS! AND OTHER SMALL HAZARDS OF THE GREAT OUTDOORS



*Eastern Tent Caterpillar*



*Forest Tent Caterpillar*

*"It was a remarkable fact that the trees on each side of the river, and part of the Lake of the Woods, for full 150 miles of our route, were literally stripped of foliage by myriads of caterpillars, which had left nothing but the bare branches."*

Since 1868, there's been an outbreak of tent caterpillars somewhere in Ontario about every 10 years.

Tent caterpillars will strip trees of their leaves, but the trees rarely die. Still, the caterpillars number in the millions and can take over an area in plague proportions.

Eastern tent caterpillars are about 50 millimetres (two inches) long; they're clearly marked with tufts of long, light-brown hair, and they have a white stripe down their backs.

Forest tent caterpillars are quite attractive with a blue stripe running the length of each side and a row of white diamond-shaped spots along the middle; they too have long tufts of brown hair.

Female moths lay their eggs in summer. Hundreds are laid at a time, in band-like egg masses, usually encircling small branches of trees. Caterpillars develop inside the eggs. Then they are dormant over winter. This is the best time to dispose of them — trim off the branches carrying the egg masses and burn them.

If you feel compelled to use insecticides, the best time to use them is in mid-May when the caterpillars begin to appear. Contact the local district office of the Ministry of Natural Resources for further information (check the Blue Pages of your telephone book).

In the spring, when the eggs hatch, caterpillars feed voraciously on budding leaves. They'll crawl anywhere in search of food, including all over your house, car, roads, trees.

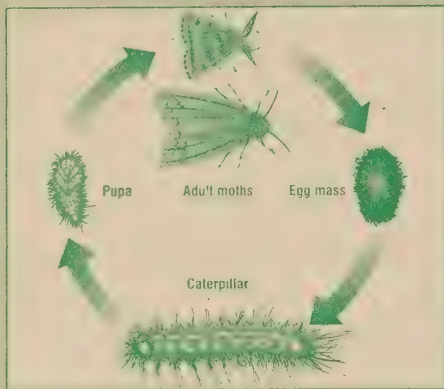
When the feeding caterpillar has had its fill, it finds a sheltered place to spin a cocoon and pupate. In two weeks, the buff-coloured moths emerge — and the egg-laying cycle begins again.

The caterpillars' mass migrations don't happen until the immediate food supply gives out. A migration peak rarely lasts more than a week.

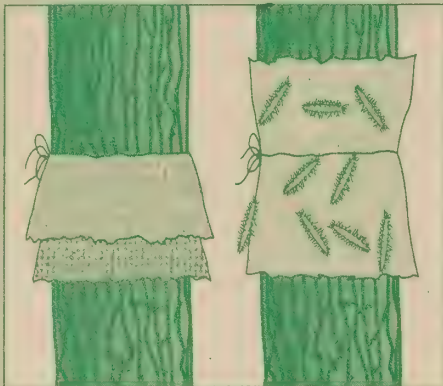
What to do? Tent caterpillars are native. The infestations last only a short time. Infestations will end naturally. All things considered, you're best to wait it out.



## THOSE PESKY BUGS! AND OTHER SMALL HAZARDS OF THE GREAT OUTDOORS



*Gypsy moth life cycle.*



*Gypsy moth larvae seek shelter  
under a burlap band.*

*When collecting larvae, wear gloves  
to avoid human skin irritation  
from larval hairs*

### *And Then, There's the Gypsy Moth*

Unlike the native tent caterpillars, gypsy moths are an introduced species. A French entrepreneur took them to the United States in 1869 in order to start a North American silkworm industry. The venture failed as a business — but the gypsy moths thrived. Within 20 years they were serious pests.

Gypsy moths first appeared in Ontario around Kingston only about 20 years ago. By 1985, they were expanding throughout the province.

The gypsy moth caterpillar's life cycle is similar to the tent caterpillar's: Egg masses are laid in summer, the larvae are dormant over winter and hatch in spring. They moult four or five times, well into summer. Hanging by a thread from trees, they're easily blown away and transported to new sites.

At this stage in their growth, the larvae eat voraciously: One larva will eat one square metre (almost 11 square feet) of foliage. Damage to trees is swift and sudden.

In mid-summer, the larva enters the pupa stage for about two weeks. Then the adult moth emerges. Another generation begins.

These infestations may continue annually for two or three years; then the cycle stops. A healthy tree will survive these years of defoliation, but it may be weakened in the process, making it susceptible to other pests or diseases.

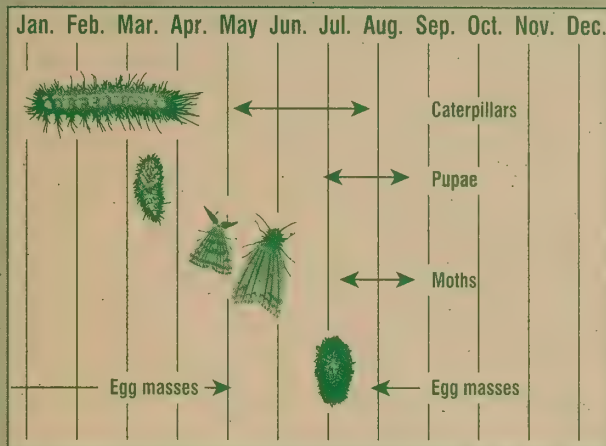
The key to controlling gypsy moth caterpillars is to stop them from spreading into new territory. Egg masses infest new areas entirely by accident — when they're transported there by people.

Check vehicles, firewood, lawn furniture, boats, campers, trucks and other vehicles for those egg masses, which the female adult moth will lay almost anywhere. Egg masses should be scraped into a container of soapy water and left there for one week. Or, they can be burned. Don't leave them on the ground — they will still hatch.

What can you do about the larvae once the eggs have hatched? You can still round 'em up. Tie a loose flap of burlap on tree trunks and branches—the larvae will hide in the folds. Then you can remove the burlap and destroy them each day. Do this in the late afternoon to capture them in the greatest numbers.



## THOSE PESKY BUGS! AND OTHER SMALL HAZARDS OF THE GREAT OUTDOORS



Timing of Control Measures

### Recommended Treatment

Collect and destroy, use burlap traps, spray *Bt*. Encourage predators, plant tree species not favoured by gypsy moths.

Crush, collect and destroy, burn safely.

Crush, collect and destroy, use pheromone traps to capture male moths (when populations are very low.)

Locate egg masses on a tree, vehicles, and outdoor equipment. Scrape and collect egg masses and burn them, or soak in soapy water (a teaspoon of dish detergent per litre.)

The Ministry of Natural Resources can advise landowners about aerial spraying of heavily infested sites. Contact the MNR district office nearest your home or cottage.

### Alternatives to Pesticides

Here are some alternatives to synthetic chemical insecticides:

- Buy an insecticidal soap and follow the directions on the label exactly, to make a solution. Spray or douse infested leaves on trees and shrubs, as directed.
- One alternative that is low in toxicity is diatomaceous earth, available in powder form. Diatomaceous earth contains the skeletons of sea organisms and is very abrasive; it damages the bodies of insects as they crawl through the material. You can apply it to wasps' nests but you need the right equipment to apply it — you may decide it's best to hire professional exterminators.
- Another alternative that is low in toxicity is boracic acid. It works on crawling insects in moist places. The easiest place to apply it is in cracks in the wall. To apply it to an insect nest, you have to be fast and have the right equipment. Again, this alternative may best be left to professionals.
- You might want to use a biodegradable product such as the biological insecticide *Bacillus thuringiensis* (*Bt*). *Bt* is often used when neighbors hire a contractor to aerially spray a large area to protect trees from caterpillar damage; you must hire a licensed contractor to spray *Bt*.
- Use botanical products that include pyrethrum (pyrethrum is derived from flowers related to chrysanthemums). It's readily available from nurseries. Read the label for information on which pests it will control as well as how to use and store it safely.



## THOSE PESKY BUGS! AND OTHER SMALL HAZARDS OF THE GREAT OUTDOORS

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### *Bugs That Can Eat You Out of House and Home*

#### *Carpenter Ants*

Despite their name, carpenter ants don't actually *eat* wood. They merely *excavate* damp wood, so they can create a nest. They play a useful role in the natural world because their activities help accelerate the decomposition of dead trees.

Still, ants aren't welcome house guests, and there are simple ways to keep them from colonizing yours. Remove decaying wood lying around your house. Any wood features on buildings should be kept dry by ensuring good ventilation and drainage.

You can spot a carpenter ant colony easily — just look for sawdust-like debris. That indicates they're building a nest. Also, if the area is very quiet, you can actually hear them excavating the nest.

To kill carpenter ants, you might consider putting a residual insecticide directly into the nest site. Read "Using Insecticides Safely".

#### *Powder Post and Furniture Beetles*

These are the bugs that can inflict real damage to your home, your hardwood floors, furniture and anything made of wood. Furniture beetles (*Anobiidae*) infest both softwood and hardwood, while powder post beetles (*Lyctidae*) infest seasoned (dry) hardwood.

Their presence is easy to spot: You'll see fine sawdust, as well as pinholes in the infested wood. The surface itself may seem quite undisturbed but for these minuscule exit holes. Don't be fooled — successive generations of the beetle larvae will eat the wood until all that's left is a fragile honeycomb.

Adult beetles don't lay eggs on finished surfaces, so keep your floor and furniture well waxed, painted, varnished, or sanded.

If lumber for outdoor construction is infested, you may be able to save the wood by having it kiln dried. Otherwise, the damaged wood must be replaced.

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### *More for You to Read*

To order the Ministry of Environment and Energy publications in the list below, telephone the Public Information Centre in Toronto at (416) 323-4321 or toll-free at 1-800-565-4923. Please use the Public Information Bank System (PIBS) number to order publications.

To order the Ministry of Natural Resources publications in the list below, telephone the Public Information Centre in Toronto at (416) 314-1553.

*Another Outbreak of Forest Tent Caterpillars.* Booklet. Forestry Canada/Ministry of Natural Resources. ISBN 0-7729-4852-6.

*Bacillus thuringiensis variety Kurstaki (B.t.).* Fact sheet. Ministry of Natural Resources.

*The Carpenter Ant and its Control.* Information sheet. Ministry of Environment and Energy. PIBS 1137b.

*Control of Forest Tent Caterpillar for the Landowner.* Resources report. Ministry of Natural Resources.

*Gypsy Moth - Fact and Fiction.* Fact sheet. Ministry of Natural Resources.

*Gypsy Moth in Ontario.* Facts about Protecting Property Against Gypsy Moth Infestation. Ministry of Natural Resources. ISBN 0-7729-8656-8.

*Organizing Aerial Spraying for Forest Insect Defoliators.* Fact sheet. Ministry of Natural Resources.

*Powder Post Beetles and Furniture Beetles.* Facts about Pesticides. Ministry of Environment and Energy. PIBS 1128b.

*Suggested Gypsy Moth Control Methods for the Landowner.* Fact sheet. Ministry of Natural Resources. †





## USING INSECTICIDES SAFELY

You can buy them as casually as you buy your groceries, but keep in mind that the insecticides you use in your house and garden are poisonous. They should be handled, used and stored very carefully so that they don't harm you, or children, or animals. The one rule you should always remember is **READ AND FOLLOW THE INSTRUCTIONS ON THE LABEL**.

This is not merely a good idea, it's the law. A pesticide label is a legal document and you must follow it to the letter. Every container of pesticide carries a label that describes the active ingredients, recommended uses, rate of application, safety precautions, first aid instructions and recommendations for cleanup and disposal.

Agriculture Canada is responsible for registering pesticides; no pesticide can be imported into, sold, or used in Canada unless it's been registered. In Ontario, under The Pesticides Act, the federally registered products are classified into one or more of six "schedules" that govern that pesticide's distribution, availability and use in Ontario.

### *Different Kinds of Insecticides*

There are different kinds of insecticides to control different pests, and they're used in different ways. *Surface* sprays are applied to floors, baseboards, shelves, etc., and leave a residue of the active ingredient to affect crawling insects. *Space* sprays are more diluted and short-

lived, and are meant to be sprayed into the air to kill flying insects. *Crack and crevice* treatments are applied to the hiding places of pests such as cockroaches.

### *Buying and Storing Insecticides*

Safety starts the minute you buy the product. Buy just enough for your immediate needs so you can avoid the problem of long-term storage. To get the insecticide home, put it in the trunk of your vehicle, well away from other items in the trunk (particularly groceries or clothing). Secure the container so it won't be damaged in transport.

At your home or cottage, keep the insecticide under lock and key so children, pets and livestock won't come into contact with it. Store it in a cool, dry, well-ventilated room or cabinet, away from heat. Keep it in its original labelled container, and be sure it's not susceptible to leaking or corrosion; be sure the cap is on tight. Keep any other equipment you need to apply or handle the insecticide (protective clothing, cleanup materials) nearby, where it's handy, but not in exactly the same spot (to avoid the risk of contamination).

### *Using Insecticides*

This can't be repeated too often: **READ THE LABEL EVERY TIME YOU USE OR MIX AN INSECTICIDE**. Don't rely on memory, especially for measuring and application instructions.

Mix the insecticide in good light and ventilation (preferably, out of doors). Wear gloves. Mix only what you need. Stand upwind. Don't smoke. Work quickly so you breathe as little of the fumes as possible.



## USING INSECTICIDES SAFELY

If you spill insecticide on your skin, wash with soap and water; if you spill it on the floor or driveway, mop it up with absorbent towels (again, be sure to wear gloves).

Don't let children, pets, or livestock around the insecticide.

### *Are you using an insecticide outdoors (on your lawn or garden)?*

#### *Take these precautions:*

- Let your neighbours know what you're doing, so they can take precautions with *their* families, too.
- Apply the product only in ideal weather conditions.
- If there's a stream, pond, or lake on your property, be very careful to avoid spilling insecticide into any of these watercourses — if you do, you are legally required to notify the Ministry of Environment and Energy.

### *Are you using an insecticide indoors?*

#### *Take these precautions:*

- If you're treating cupboards or tables, remove all food and utensils first.
- Afterwards, cover shelves with new shelf paper. Wash table areas.
- If you're using a residual insecticide, everyone should leave the building for several hours to give it a chance to dry and to avoid breathing fumes.

#### *Cleaning up afterwards:*

When you've finished the treatment — indoors or out — clean up right away. First clean up the surrounding environment, then yourself. Wash the clothing you used, separately.

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### *Disposing of Insecticides*

Empty insecticide containers should never be used again. If the products you are using require mixing, always mix and rinse them out outdoors, not inside. (Don't risk contaminating your kitchen sink and don't rinse containers in a bucket that could end up being used again in the kitchen or laundry room.) If you are finished with your aerosols, dusts (i.e., rose dust), granular preparations or ready-to-use non-aerosol pump sprays, and the containers are empty, do not rinse them: wrap them in newspaper, seal them in a plastic bag and put them out for regular garbage collection. Don't puncture aerosol cans — they could explode! Don't burn anything — the fumes could be toxic.

Don't keep leftover insecticides unless you plan to use them again very soon. Don't pour them down the drain, and don't bury them. Contact your municipality about special household hazardous waste collection days, when you can drop off insecticides and other waste materials for safe disposal. Some municipalities have permanent depôts or will arrange to pick up your hazardous waste.

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### *Aerial Spraying on Rural Land*

Periodically, parts of Ontario experience outbreaks of leaf-eating caterpillars, such as forest tent caterpillars and gypsy moth caterpillars. If you own a woodlot or large acreage, you may want to hire an aerial spraying company to combat these pests. You must hire only a licensed, insured company which follows The Pesticides Act and Regulations, administered by the Ministry of Environment and Energy.



## USING INSECTICIDES SAFELY

The insecticide itself must also be registered by Agriculture Canada (you can call them toll-free at 1-800-267-6315) and it must be provincially scheduled by the Ministry of Environment and Energy.

For more information on forest pests and forest management, contact your local district office of the Ministry of Natural Resources. Read "Those Pesky Bugs! ... And Other Small Hazards of the Great Outdoors".

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### *In an Emergency*

If you come into accidental contact with an insecticide, check the label for first aid instructions. Treatment may be simple: For example, you may only need to wash off insecticide that's spilled on your skin.

If you or someone else accidentally *swallows* the product, treatment may be more complicated. Follow the advice on the label. If necessary, call for help. You can call the poison control centre of the nearest hospital, your doctor, the police, or the fire department. Tell them the name of the product, the chemical ingredient, and the antidote (all this information will be on the label). Get further instruction. If you go for help, take the labelled container with you.

If you spill insecticide in a way that allows the product to enter a watercourse or contaminate the environment, notify the Spills Action Centre at 1-800-268-6060. You're legally required to do so.

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### *More for You to Read*

To order the Ministry of Environment and Energy publications in the list below, telephone the Public Information Centre in Toronto at (416) 323-4321 or toll-free at 1-800-565-4923. Please use the Public Information Bank System (PIBS) number to order publications.

To order the Ministry of Natural Resources publications in the list below, telephone the Public Information Centre in Toronto at (416) 314-1553.

*It's in Your Hands.* Brochure. Ministry of Environment and Energy. PIBS 697b.

*Organizing Aerial Spraying for Forest Insect Defoliators.* Fact sheet. Ministry of Natural Resources.

*Pesticide Safety in Your Home.* Information sheet. Ministry of Environment and Energy.

*Pesticides — Some Basic Facts.* Fact sheet. Ministry of Natural Resources. †



## TOO CLOSE FOR COMFORT: WHAT TO DO ABOUT NUISANCE ANIMALS

Is your garbage grabbed nightly by raccoons? Are groundhogs invading your turf? Are skunks raising a stink under your porch? More and more, people are finding themselves living cheek-by-jowl with animals that have adapted to humans' presence. As their natural habitat makes way for farms, cottages and subdivisions, nuisance wildlife is no longer just a rural problem.

The most important thing to remember about wildlife: Never approach any wild animal. And be extra cautious in the company of an animal that behaves strangely. Skunks, foxes and raccoons commonly carry rabies; contact the nearest humane society or the nearest Ministry of Natural Resources district office to report suspected rabid animals. Make sure your pets' vaccinations are up to date.

Here's what you can do to deal humanely with unwanted guests.

### *Skunks and Raccoons: Midnight Raiders*

Skunks live in almost all parts of Ontario, and they're famous for their means of defence — that distinctive odor they spray from anal scent glands.

Skunks are omnivorous and eat grubs, small rodents, insects, carrion, fruit and vegetables; sometimes they eat eggs. They're active at night and live in dens — usually they enlarge already-existing holes.



Raccoons are common in southern and central Ontario; like skunks, they're nocturnal. They're also among the most successfully-adapted city-dwellers in the wild kingdom, living in chimneys and under porches. Their country cousins are more inclined to live in hol-

low trees, rock crevices, logs, or burrows. Their diet includes insects, frogs, fish, birds, eggs, fruit, nuts and corn. Of course, they also forage in garbage cans.

Both skunks and raccoons will make your home theirs if your property offers the right kind of real estate: cavities in rock piles, spaces beneath cottages, little-used farm buildings and junk piles. If you spot just one resident skunk, you may really be playing host to *several* — often, skunks live communally in one den.

The best defence against skunks and raccoons is to not give them a place to park. At night, close and lock all doors and openings to buildings, especially chicken coops and other outbuildings. Close off crawl spaces under them using wood, cement, sheet metal, or wire netting. Close off holes in your attic, and cap your chimneys, to keep raccoons out.





## TOO CLOSE FOR COMFORT: WHAT TO DO ABOUT NUISANCE ANIMALS

Are skunks or raccoons already in residence? Get rid of those under a building or in an attic by throwing 0.5 - one kilogram (one or two pounds) of moth flakes in the denning area (enclose them in a mesh bag to remove and dispose of the flakes more easily). Leave one opening for the marauders to make a getaway. Dust flour or talcum powder around the opening so you can see by their tracks if they've left. Then seal the opening.

You can also discourage skunks and raccoons with bright lighting. Use two 100-watt bulbs every 15 square metres of garden or yard. Or use floodlights. Swaying lights work even better.

Out of doors, you can also trap raccoons and skunks in a barrel. Put the barrel (or a 45-gallon drum) right beside a fence post. Drill some holes around the sides of the barrel, near the bottom. Put bait inside. The scent from the bait should lure the animal so it climbs the fence, looks into the barrel — and drops inside. Once in, it can't get out.

Similarly, you can live-trap skunks and raccoons. Live-traps can be rented from humane societies or local pounds. Cover the live-trap with burlap and set it in the animals' traffic area. Bait the trap with canned cat food, sardines, crisp bacon, or honey-drenched vegetables.

Moving the live-trap is a tricky business once there's an alarmed skunk inside. Keep the live-trap covered (drop some extra sheeting over the burlap). Be prepared to travel some distance to release the animal where it won't be a nuisance to someone else.

To keep beehives out of skunks' reach, put the hives on platforms one metre high — skunks are poor climbers.

About that spray... Skunks are usually peaceful animals that spray only as a last resort. If your pet is sprayed, bathe it in that time-honoured solution, tomato juice. Leave the juice on for at least a half hour. Follow up with a pet-shampoo.

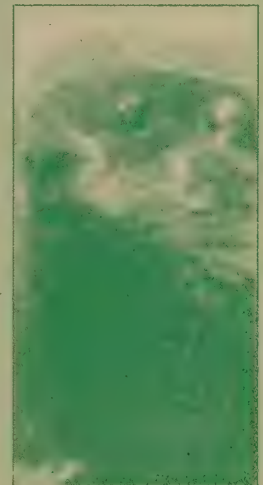
If your pet gets only a limited dousing, wash the area with cooking oil and follow with a mild liquid dish detergent shampoo.

### *In the Shadow of the Groundhog*

Groundhogs (also called marmots or woodchucks) live in fields, old pastures and fencerows, orchards, gardens, backyard hedges and wooded areas. They eat grass, clover and succulent green plants — half a kilogram each day.

They may damage fruit or ornamental trees by gnawing the bark. And of course, they'll eat garden vegetables. They hibernate in winter.

To track a groundhog, look for its burrow. A groundhog rarely travels more than 30 metres from its burrow if it's already handy to a food source. A groundhog in residence cleans out its burrow almost daily, so look for fresh soil ranging in size from pellets to large clods in a semi-circular mound at the entrance to the burrow.



## TOO CLOSE FOR COMFORT: WHAT TO DO ABOUT NUISANCE ANIMALS

As with skunks and raccoons, you can also live-trap groundhogs. Set the trap in the animal's feeding area and bait it with fresh string beans, sweet corn, peas, carrots, or apples. If it's summer, check the trap every one or two hours. In fall and spring, check the trap in the morning and the evening.

When you've caught your first groundhog, reset the trap — there's likely more than one problem animal.



### *Don't Dump on Black Bears!*

Black bears in the wild are not docile pets, circus performers, or cartoon characters. They're large, unpredictable and potentially dangerous. Give them your respect — and a wide berth.

Ontario is one of the few places in North America where you'll see black bears in the wild — they're nearly extinct in the continental United States. As more people get involved in camping and cottaging in Northern Ontario, it's likely there will be more encounters with bears.

Bears feed on buds, berries, roots, insects and carrion but, like many wild animals, they can quickly become used to the same cuisine as humans — or, at least, the leftovers. Garbage dumps are great places to sight bears.

The best way to avoid a close encounter of the bear kind is to not attract them to you in the first place. At the cottage or on the farm, keep garbage in clean, tightly sealed containers. Think tough: Use 45-gallon drums with locking lids for serious bear-proofing. Put an electric fence around beehives.

When camping, keep the site spotless, garbage-wise. Bears have poor eyesight but keen noses. Never keep food in your tent. For that matter, anything with a scent — perfume, toothpaste, soiled clothing, soaps — should be stored *away* from the tent. Suspend your food pack by a rope between two trees, at least four metres (about 13 feet) off the ground.

As for food scraps, bury uneaten food well away from camp, and do it soon after a meal. Clean freshly caught fish at a similarly safe distance. Pack all other garbage in tightly sealed containers.



## TOO CLOSE FOR COMFORT: WHAT TO DO ABOUT NUISANCE ANIMALS

Walking in the woods? Let bears know you're coming — whistle, make noise, tie bells to your shoelaces.

Never confront a bear. If you do encounter one, stop, make noise, slowly put down anything you're carrying (to distract the bear) and back off. Take shelter in a building or vehicle or, if there's no other alternative, climb a tree. Wait it out.

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### *The Littlest Scavengers: House Mice and Rats*

Rats and mice are persistent, and it can be expensive and time-consuming to build barriers that keep them out of your house or cottage.

You'll find house mice just about anywhere — between double walls, in floor joists, in cupboards and under counters.

Rats live in burrows just under ground level, inside or outside, and close to buildings. Dumps and sewers are favored habitats.

The best way to solve the rodent problem is to prevent it altogether. Make sure all food is stored in rodent-proof containers; if there's nothing to eat, they won't set up house.

Are mice already in residence? To control them, there are humane live-traps on the market, but be prepared to release the mice well away not only from your house but from others too.

Humane traps (or that old standby, the spring trap) should be placed strategically in-line with the animals' runways, which are along baseboards, in boxes and in sheltered areas.

If the traps don't work, you might want to consider using rodenticide. Keep in mind that many brands will only work if the mice eat them for several

days in a row; make sure you put down fresh supplies every day. Read the label and follow the instructions to the letter. And keep children and pets well away from the poison.

To control rats you have to cut off their food and shelter. Rat-proof storage rooms, warehouses, utility lines, pipes, roof vents, windows and doors. Dispose of garbage promptly and properly. Place rodenticide in sheltered spots, and/or use baited snap traps.

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To order the Ministry of Natural Resources publications in the list below, telephone the Public Information Centre in Toronto at (416) 314-2225.

*The House Mouse.* Facts about Pesticides. Ministry of Environment and Energy. PIBS 1157b.

*Rats and Their Control.* Facts about Pesticides. Ministry of Environment and Energy. PIBS 1131b.

*When Black Bears Become a Nuisance.* Ministry of Natural Resources. ISBN 0-7729-3994-2.

*When Groundhogs Become a Nuisance.* Ministry of Natural Resources. ISBN 0-7729-3522-X.

*When Raccoons Become a Nuisance.* Ministry of Natural Resources. ISBN 0-7729-0875-3.

*When Skunks Become a Nuisance.* Ministry of Natural Resources. ISBN 0-7729-0876-1. ▲





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